

WHAT IS CLAIMED IS:

1. An object lens for an optical pickup, said object lens being of finite conjugate type for use in an optical pickup capable of recording data in and reproducing data from a first optical recording medium and a second optical recording medium respectively having recording faces at different heights by irradiating said first optical recording medium and
5 said second optical recording medium with a laser beam through said object lens,

said optical pickup including a semiconductor laser diode array having light emitting portions for respectively emitting laser beams of different wavelengths, and

said object lens being designed to have numerical aperture controlled to be
10 changed in accordance with switching between said different wavelengths, whereby allowing said laser beam to be focused on said first optical recording medium or said second optical recording medium.

2. The object lens of Claim 1,

wherein a relative positional relationship between said object lens and said
15 semiconductor laser diode array is fixed.

3. The object lens of Claim 1,

wherein a distance between said light emitting portions of said semiconductor laser diode array is 270 μm or less.

4. The object lens of Claim 1,

20 wherein change of the numerical aperture of said object lens is controlled in accordance with the switching between said different wavelengths in such a manner that, in the case where a laser beam of a wavelength suitable to said first optical recording medium is allowed to pass through said object lens for irradiating said first optical recording medium, portions of said laser beam respectively passing through a circular center region
25 including a lens optical axis and a ring-shaped intermediate region around said center

region are focused on the recording face of said first optical recording medium, and that in the case where a laser beam of another wavelength suitable to said second optical recording medium is allowed to pass through said object lens for irradiating said second optical recording medium, portions of said laser beam respectively passing through said center region and a ring-shaped peripheral region around said intermediate region are
5 focused on the recording face of said second optical recording medium.

5. The object lens of Claim 4,

wherein said center region and said intermediate region are defined by an identical lens function.

10 6. A method for designing an object lens for an optical pickup,

said object lens being finite conjugate type for use in an optical pickup capable of recording data in or reproducing data from a first optical recording medium and a second optical recording medium respectively having recording faces at different heights by irradiating said first optical recording medium and said second optical recording medium

15 with a laser beam through said object lens,

wherein, in the case where said object lens is disposed in a position fixed against a semiconductor laser diode array including light emitting portions for respectively emitting laser beams of different wavelengths, numerical aperture of said object lens is controlled to be changed in accordance with switching between said different wavelengths for allowing
20 said laser beam to be focused on said first optical recording medium or said second optical recording medium.